HEADREST

RELATED APPLICATION

This application claims the benefit of U.S. Provisional Application Serial No. 60/096,426, filed August 13, 1998.

FIELD OF THE INVENTION

The present invention generally relates to headrests, and in particular, headrests for use in connection with seats, such as car seats and airplane seats.

BACKGROUND OF THE INVENTION

Generally, a passenger in a passenger vehicle, such as an automobile, airplane, bus or train, suffers significant neck strain when resting since seats in such passenger vehicles typically provide support only to the back portion of the passenger's head. More specifically, since seats in such passenger vehicles are not designed to keep the passenger's head in a substantially upright, vertical orientation relative to the passenger's torso (e.g., when the passenger is at rest or sleeping), neck strain may result due to the natural instability of an unsupported head when no muscles are being used to support the head.

In order to alleviate such neck strain, various devices have been developed. For instance, pillows designed to fit around the backside of the passenger's neck have been developed. Such neck pillows are inflatable with air or consist solely of a foam material. However, such neck pillows generally do not provide adequate support to inhibit neck strain due to their readily deformable or "sponge-like" nature. Further, use of such neck pillows tends to allow the entire body of the user to slide sideward because lateral acceleration causes the passenger's body to slip against the seat. In addition, such neck pillows typically do not allow passengers to adjust the configuration of the device to suit the passenger's tastes or dimensions.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a headrest which alleviates neck strain.

It is a further object of the present invention to provide a headrest capable of supporting at least a side portion and/or a back portion of a person's head.

It is another object of the present invention to provide a headrest which is releasably securable to chairs or passenger seats in various vehicles, such as automobiles, buses, trains and airplanes.

It is another object of the present invention to provide a headrest which is portable and easily storable.

It is still another object of the present invention to provide a headrest which is adjustable to suit a passenger's tastes or dimensions.

It is yet another object of the present invention to provide a headrest which is interconnectable to a back support portion of a passenger seat and which replaces existing headrests.

In one aspect, the present invention is embodied in a headrest for use in various land-based and air-based vehicles, such as automobiles, buses, trains and airplanes. Generally, the headrest of the present invention may include a frame comprising a back member for supportably engaging at least a back portion of a person's (e.g., passenger's) head and first and second wing members for supportably engaging first and second side portions, respectively, of the person's head, and a first interconnecting member for attaching at least the back member to a seat. The first and second wing members function to inhibit neck strain by supporting first and second side portions of the passenger's head (e.g., cheekbone portions), respectively, when the passenger falls asleep (depending upon to which side the passenger's head is leaning). In one embodiment, the first and second wing members are integrally formed with first and second end portions of the back member as a unitary structure. In another embodiment, the first and second wing members are pivotally interconnected to first and second end portions of the back member, respectively. In both of these embodiments, the first and second wing members, in cooperation with the back member, provide a rigid structure or frame to support a person's head when such person's head falls to one side or the other when such person falls asleep. In addition, such headrest may be utilized in various configurations due to the adjustability of the first and second wing members. By virtue of this arrangement, virtually uninterrupted sleep may be achieved without substantial neck strain since the headrest of the present invention can supportably engage either or both sides of a person's head with the wing members. In an alternative embodiment, the headrest of the present invention includes only a single wing member interconnectable to the back member.

More specifically, in one embodiment, the headrest includes a substantially C-shaped or U-shaped frame and an interconnecting member for attaching the frame to a seat, such as a passenger seat utilized in automobiles, airplanes, buses and trains or an office-type of chair.

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In this embodiment, the rigid frame includes a back member for supportably engaging at least a back portion of a person's head and first and second wing members integrally formed with the back member at first and second end portions of the back member. Such wing members are capable of supportably engaging first and second side portions of the person's head. The frame may comprise a rigid or semi-rigid material having a modulus of elasticity (e.g., at least about 10^6 psi) and/or a yield strength of between about 3,000 psi and about 30,000 psi. In this regard, the first and second wing members may be bent relative to the back member, such that the size of the cavity defined by the first and second wing members and back member is variable. As such, due to the adjustability of the first and second wing members relative to the back member, various head sizes and configurations of the head support may be achieved while providing support to either side of an unsupported head at rest. The wing members are generally 6-7 inches in length from the back member to the tips of the wing members. The headrest of the present invention may also be used as a support device in other applications (e.g., lumbar area in automobile seats, the thoracic/rib cage area or the leg or seat area of automobile seats, or alternatively, hospital beds, Rotorest™ or any lateral motion therapy bed). Such a support may be utilized in other seats, such as dental chairs to locate or position a patient's head in a fixed position, massage tables, chiropractic chairs and tables, and physical therapy tables (e.g., to strengthen the patient's neck if injured and in need of physical therapy by applying torque to the wing members). Other uses of the support include recliner chairs, chaise lounge chairs and infant or children's seats (e.g., car seats).

In another embodiment, width adjustability of the headrest is provided by first and second hinge members, which hingedly interconnect the first and second wing members, respectively, to first and second end portions of the back member, respectively. In order to provide such adjustability, such that the first and second wing members are capable of supporting first and second side portions of a person's head, the first and second hinges may include a pivot adjustment mechanism for releasably maintaining the first and second wing members, independently, at any of a plurality of pivot positions relative to the back member. In this regard, the first and second wing members may be moved to desired configurations/positions relative to the back member and releasably fixed in such configurations/positions to support first and second side portions of a person's head when resting. Such adjustment not only provides comfort to the user, but also may facilitate easy storage of the headrest by providing a foldable headrest (e.g., a headrest capable of lying flat), which occupies less space than other conventional headrests. In one embodiment, the hinge members comprise unbalanced hinges requiring less torque to move the first and second wing

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members inwardly than to move the first and second wing members outwardly, towards an unfolded, open configuration. Such hinges (e.g., clutch spring hinge) also function to dampen the loads to provide a more comfortable ride to the user. In an alternative embodiment, adjustability of the wing members is provided by motorizing the wing members by placing a geared motor(s) proximate the hinges interconnecting the wing members to the back member. Such geared or coupled motor(s) enables the user to easily adjust the angle of each wing member relative to the back member. In yet another embodiment, the hinges are adapted to allow the wing members to not only move inwardly and outwardly relative to the back member, but also upwardly and downwardly (i.e., vertically) relative to the back member, to thereby allow the wing members to be stowed along the ends (i.e., sides) of the back member. In this embodiment, such hinges may further include a pin joint or may otherwise comprise a ball joint. Alternatively, the hinges may be adapted to allow the wing members to move only upwardly and downwardly relative to the back member, the wing members being oriented in fixed relation relative to the back member at about 20 degrees to allow a person's head to rest against one or both wing members. For purposes of providing a light-weight yet durable headrest, the first and second wing members and/or the back member may comprise a light-weight metal, such as aluminum, wood, composites, or a plastic, such as high density polyethylene (HDPE).

The headrest of the present invention may be interconnected to a passenger seat of a vehicle in various fashions, depending upon whether the headrest of the present invention is to replace a removable headrest interconnected to a back seat portion of a passenger seat, or is to be utilized as a kit-type of add-on to an existing headrest of a passenger seat. In one embodiment, in instances where the headrest of the present invention will replace a conventional removable headrest, the interconnecting member for attaching the headrest to the back seat portion of the passenger seat comprises at least a first post or stem (e.g., blade) which is interconnected or integrally formed with the back member of the headrest. Such post or stem may be configured to be received within an existing post-receiving channel which extends vertically through at least a portion of the back seat portion of the passenger seat. Such posts or stems are particularly useful when combined with the headrest of the present invention to provide lateral support to users when subjected to torque loading. In instances where the headrest will be attached to an existing, conventional headrest of a passenger seat, the interconnecting member may comprise a first strap adapted to extend around the perimeter of the conventional headrest. Such strap may be of a non-slip nature (e.g., non-slip suede, vinyl, or other similar high coefficient of friction material) and include

at least a first fastening mechanism, such as Velcro, buckles, clamps, cinches, etc. for securing the strap about the conventional headrest of the passenger seat. Such non-slip material inhibits migration of the headrest relative to the seat.

For purposes of providing comfort to the passenger, the headrest of the present invention may further include padding and a cover. In one embodiment, where the frame comprises a unitary, integrally formed structure, the padding may include a molded foam member which is receivable over the frame, such that the frame is not exposed or otherwise contactable with the passenger's head. In order to provide sufficient comfort while supporting a person's head, in one embodiment, the padding has 25% impact load deflection (ILD) of between about 1.0 to about 3.5 and, in a preferred embodiment, between about 1.6 to about 2.5. In one embodiment, the 25% ILD of the padding is about 2.3. In one embodiment, the padding comprises a gel or foam material, such as a Tempurepedic™ foam (e.g., a heat sensitive, highly conformable polyurethane). In another embodiment, the padding may comprise first and second layers, whereby the first layer of padding has a durometer greater than the second layer of padding, the first layer of padding in abutting relation with the frame. In addition, in order to enhance adherence of the padding to the frame, the frame may include a plurality of hollowed or cut out areas while reducing the potential for delamination and damage to the headrest. Alternatively, the padding may comprise separate foam members each covering a specific portion of the frame. For example, first and second wing foam members may cover the first and second wing members, respectively, while a back foam member covers the back member. The padding may also include a neck roll for abuttingly engaging a back portion of a user's head (e.g., protrusion on lower, back area of person's head, about the neck area). Such neck roll functions to position or align the user's head with the wing members and further to be the primary loading point on the back of the user's head. The neck roll enhances positioning of the wing members relative to the user's eyes, such that the user can see over the wing members due to neck roll functioning as the primary locator point. In other embodiments, the padding of at least the wing member is a sound absorbing foam adapted to inhibit noise penetration (e.g., when the wing members are positioned over the user's ear(s)). In another embodiment, the first and second wing members include first and second sound speakers, respectively, which are in electrical communication (e.g., via a standard jack phone system) with a portable stereo or other similar device (e.g., automobile stereo, airplane sound system, etc.). Alternatively, such stereo system may be battery-powered and incorporated into the headrest. In still another embodiment, the first and second wing members may include commercially available noise

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cancellation circuitry that is adapted to cancel ambient noise by generating 180° phase shifted frequencies to those ambient, thereby canceling the noise at the user's ear(s). In yet another embodiment, the wing members may include a sound system adapted to generate repeating or constant frequencies that are soothing to listeners. Such sound system may be positioned in the wings or in the back member with controls (e.g., knobs) on the backside (e.g., non-head supporting) surface of the wings for easy control access during use. In still another embodiment, the headrest may include a pitch control mechanism, to provide further comfort to the user, such pitch control to allow the headrest to roll forward on a pawl that supports the headrest in a first, forward position until it is rolled fully forward at which point the pawl is released to allow the headrest to go back to an aft position.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is perspective view of one embodiment of the headrest of the present invention;

Figure 2 is an exploded view of the headrest illustrated in Figure 1;

Figures 3A-3B are perspective views of another embodiment of the frame of the headrest of the present invention;

Figures 4A-4B are perspective views of the padding of the headrest of the present invention; and

Figure 5 is an embodiment of the headrest of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Figs. 1-4B illustrate the various features and characteristics of the present invention. Generally, for purposes of supporting a person's head when such person falls asleep in a seated or prone position (e.g., when seated or lying down in a car seat, train seat, airplane seat, bus seat, etc. or a chair), the headrest of the present invention generally includes a rigid or semi-rigid frame having first and second wing members and a back member interposed therebetween, and at least a first padding member interposable between the person's head and at least one of the first and second wing members and back member. Due to the support provided by the rigid or semi-rigid frame, neck strain is substantially inhibited or otherwise reduced.

Referring to Figs. 1-2, in one embodiment of the headrest of the present invention, the headrest 10 generally includes first and second side or wing portions 14, 18 for

supportably engaging side portions of a person's head, especially when the person is seated, a back portion 22 for supportably engaging a back portion of a person's head, especially when at rest, and an interconnecting member 26 for securing the headrest to a seat. For purposes of inhibiting slippage of the headrest 10 relative to a seat, in this embodiment, the headrest 10 further includes a pitch restraint member 30 which is adapted to engage (e.g., in a pressure fit manner) a top portion of the seat (e.g., an existing headrest portion of the seat).

More specifically, and referring to Fig. 2, the headrest 10 of this particular embodiment of the present invention includes a semi-rigid or rigid frame 34, a padding member 38 and a strap 42 for interconnecting the headrest to a seat. For purposes of adequately supporting a person's head, and in particular a person's head when the person is asleep and the head is tilted to one side or the other, the frame member 34 is generally C-shaped or U-shaped, and includes first and second wing members 35a, 35b for supporting a person's head (e.g., side portions of the person's unsupported head) and a back member 35c, which is adapted to provide the interface between the first and second wing members 35a, 35b and the seat, via the strap 42, which is feedable through the vertical slots 43a, 43b of the back member 35c (which will be described in more detail hereinbelow). In this embodiment, the first and second wing members 35a, 35b are integrally formed with the back member 35c. In addition, in order to provide adjustability in the size of the cavity formed by the headrest 10 (e.g., width adjustability), the first and second wing members 35a, 35b are pivotable relative to the back member 35c. In this regard, the frame 34 may comprise a bendable material, such as aluminum, aluminum alloys, plastic, composite or steel. The frame 34 is sufficiently stiff to support lateral loads of up to 8 pounds (i.e., 40 in.-lbs.) at the tips of the wing members 35a, 35b and to support the weight of the wings. In this regard, the headrest may fold to a flattened configuration if 45 in.-lbs. or more were applied to the wing members. Such a headrest provides safety features as it would buckle under light impact loads to the tips of the wing members (i.e., column strength is weak) and 45 in.-lbs. under lateral loads. Such frame may be fabricated from a thermoplastic elastomer, such as Hytrel. Alternatively, the frame may be fabricated from a shape memory alloy, such as nickel titanium, which could provide for some adjustability of the wing members relative to the back member. As such, the frame member 34, and specifically, the first and second wing members 35a, 35b are capable of being bent relative to the back member 35c, in a hinge fashion, and are capable of substantially maintaining such orientation relative to the back member to suitably support a head at rest thereon. Such width adjustability is enhanced by providing at least one cut out or slotted area 36 in each hinge area of the frame member 34. Advantageously, the first and

second wing members 35a, 35b are independently movable relative to each other and the back member 35c, which enables a user to move the wing members to any of a number of desired positions relative to each other and to the back member 35c. It should be noted that such cut out areas 36 also function to ensure that the padding member 38 is anchored to the frame member 34 as portions of the padding member 38 proximate such cut out areas 36 fill such cut out areas 36.

The strap 42 generally functions to interconnect the frame member 34 to a seat or chair. In this embodiment, and referring to Figs. 1 and 2, the strap 42 is receivable within the slots 43a, 43b of the back member 35c, and comprises a hook and loop fastener (e.g., Velcro) to secure end portions 44a, 44b of the strap 42 to intermediate portions 45a, 45b of the strap 42, respectively, whereby a middle portion 46 of the strap is loopable around a back portion of a seat. Use of such a strap 42 allows for a quick and efficient installation onto a seat without endangering passengers positioned in back of the seat. Alternatively, the strap may include one or more buckles, cinches, clamps and other similar fastening devices for attaching the headrest 10 onto a seat. Such strap 42 enables the headrest 10 of the present invention to be secured to substantially any type of in-place existing headrest of a seat, such as automobile seats, airplane seats, train seats, bus seats, office chairs and other similar types of seat structures.

As noted hereinabove, the headrest 10 also includes a padding member 38. In one embodiment, the padding member is a molded foam headrest. The frame member 34 may be molded into the padding member 38. Generally, the inner surfaces of the first and second wing portions 39a, 39b of the padding member 38 are fully radiused so that side portions of an unsupported head of a person can contact the headrest at virtually any angle, from horizontal to vertical, in a comfortable manner. The back portion 39c of the padding member 38 transitions to the wing portions 39a, 39b in a relatively large radius, upon which an unsupported rear portion of a head may be supported. Further, in this embodiment, for purposes of adequately supporting a person's unsupported head, the padding member 38 has a 25% ILD between about 1.6 and about 2.6, and more particularly, between about 1.8 and about 2.4. In a preferred embodiment, the 25% ILD of the padding is about 2.1. Alternatively, in order to enhance comfort, a first layer in contact with the frame member 34 may comprise a stiff, light weight foam while a second layer interposable between the head of a person and the first layer may have a softer, lower durometer to provide a softer, more cushioned support. Finally, the padding member 38 is configured to adequately support the back portion of a person's head while supportably engaging cheek bone portions of a person's

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head. More specifically, the padding member 38 is configured such that the top surface 40c of the back portion of the padding member is higher than the top surfaces 40a, 40b of the wing portions 39a, 39b.

Optionally, and as illustrated in Fig. 2, the headrest 10 may further comprise a cover 46 for enhancing comfort and for facilitating cleaning of the headrest 10. In one embodiment, the cover comprises leather, lycra, cotton, vinyl, Polartec® or other similar materials. The cover is removable and should be washable for hygiene purposes. In addition, the cover should be configured to snugly fit about the padding member 38 and may additionally include slots on the back side thereof to accommodate the strap 42. The headrest 10 may further include a pitch restraint member 50 interconnectable to the cover or frame. The pitch restraint member 50 is a vertical strap interconnectable to the top part of the back member 22, the strap 52 being loopable over the top of the headrest 10 and releaseably attachable to the cover 46 via a fastener (e.g., Velcro, snap, buckle, etc.). The pitch restraint strap 50 provides a three point mount to secure the headrest 10 to a seat headrest, which inhibits rolling down of the headrest 10 when a user leans against one of the wing members 35a, 35b.

In another embodiment, illustrated in Figs. 3A-5, the headrest is adapted as a replacement for existing removable headrests on automobile-type seats. Generally, the headrest 110 illustrated in Fig. 5 includes first and second side portions 114. 118, a back member 122 and an interconnecting member 142 for securing the headrest to an existing seat. More specifically, and referring to Figs. 3A-3B, the headrest includes a semi-rigid or rigid frame 134 comprising first and second wing members 135a, 135b which are pivotally interconnectable to a back member 135c via hinge members 136a, 136b, and first and second wing pad members 139a, 139b for covering first and second wing members 135a, 135b, along with a back pad member 139c for covering the back member 135c. Also included is an additional neck roll pad 139d on the back pad member 139c for abuttingly engaging a or lower area of the back side of a person's head. In this embodiment, the first and second wing members 135a, 135b and the back member 135c function to provide a rigid support structure for supporting an unsupported head of a person at rest or seated, substantially as described hereinabove with respect to the embodiment illustrated in Figs. 1-2. In this regard, the first and second wing members and back member 135a, 135b, 135c may comprise a rigid material, such as aluminum, plastic, steel or other composite. The wing members 135a, 135b are generally rectangular in shape, and have a height less than that of the back member 135c. In addition, for purposes of reducing viewing interference when a user wishes to look sideways,

such that the user can rest while looking over the wing members, the neck roll pad 139d is positionable between the upper and lower walls of the wing members 135a, 135b. Advantageously, the width of the back member 135c is about 6.5 inches, plus or minus 0.5 inch, such that the head of the user will be comfortably received within the cavity of the headrest without having to adjust the wing members 135a, 135b inwardly to such a degree (e.g., 80 degrees or more relative to the back member) that the wing members become a safety concern, especially in instances of acceleration or deceleration where the head may be forced back toward the headrest. Of importance, in this embodiment, the hinge members 136a, 136b function to allow pivotal or hinged movement of the wing members 135a, 135b relative to the back member 135c. Such pivotal movement of the first wing member 135a is independent of the pivotal movement of the second wing member 135b to provide numerous comfort configurations for the user. Such hinge members 136a, 136b also allow the headrest 110 to be used or otherwise stowed in a flattened configuration (e.g., 180 degrees relative to each member, or otherwise folded to provide a compact, easily storable headrest). Although the degree of rotation of the first and/or second wings may be varied relative to the front surface of the back member 135c, for safety reasons, rotation of the first and second wing members 135a, 135b, in a preferred embodiment, is limited to less than about 250 degrees relative to a front surface of the back member 135c.

In one embodiment, the first and second hinge mechanisms 136a, 136b comprise unbalanced hinges (e.g., springs with definable friction consistent over a range of motion, such as clutch springs, torsion springs, etc.), whereby a first torque is required to rotate the first and second wing members 135a, 135b inwardly, towards the front surface of the back 135c, and a second torque different than the first torque is required to rotate the first and/or second wing member 135a, 135b outwardly, away from the front surface of the back member 135c. The first torque may be less than the second torque. For instance, the first torque required to rotate the first and/or second wing members 135a, 135b inwardly is about 25 inch pounds while the second torque required to rotate the first and/or second wing members 135a, 135b outwardly, relative to the back member 135c is about 35 inch pounds. In this regard, the hinge mechanisms 136a, 136b, in cooperation with the first and second wing members 135a, 135b and the back member 135c can support an unsupported head of a person while maintaining their respective position and/or orientation relative to each other. In another embodiment, the hinges may comprise a hinge mechanism which is adapted to allow the first and/or second wing member to be rotated inwardly and/or outwardly relative to the front surface of the back member 135c, such that the first and/or second wing members 135a, 135b

are substantially parallel to the back member 135c to facilitate storage of the headrest. In this embodiment, the hinge mechanisms 136a, 136b define hinge axes which are coplanar and parallel to each other. In another embodiment (not shown), the hinge axes may be coplanar and not parallel to potentially provide enhanced comfort to a user. In addition, the first and second hinge mechanisms may be balanced hinges. Further, in still another embodiment, the hinge mechanism may comprise an adjustable coil mechanism.

For safety purposes, the wing members can be limited in their degree of motions. In this regard, the headrest 110 further includes first and second wing rotation stops 162a, 162b which function to ensure that the wing members 135a, 135b do not close (i.e., rotate inwardly). The wing rotation stops 162a, 162b thus prevent the wing members 135a, 135b from rotating beyond a selected orientation relative the back member 135c, which is especially useful in instances (e.g., accidents) during sudden braking or deceleration where the user may be thrown back against the headrest 110. As such, the wing rotation stops 162a, 162b limit the wing members 135a, 135b from rotating inwardly or forwardly relative to the back member 135a beyond a selected angle (e.g., 70 degrees). In one embodiment, the wing rotation stops 162a, 162b include a bar comprising metal or other high strength material mountable to the end portion of the back member, the bar adapted to bear upon the wing members when the wing members 135a, 135b rotate inwardly. Alternatively, the wing rotation stops 162a, 162b comprise a roll pin or dowel mounted on each of the spindles of the tension spring plates (i.e., hinges) varying the position of the wing members 135a, 135b relative to the end portions of the back member (e.g., extending the distance between the wing member mounting holes and the back member), or by mounting a bar or a rod between the two plates of each hinge, such bar being mounted along the axes of the hinge spindles but offset the diameter of the spindles and material to enable it to swing until contacting the hinge plate of the other section. In still another alternative embodiment, high durometer foam wedges are positionable on the front faces of the wing members. Such wedges may be bonded or glued to the wing members, and would allow the wing members to rotate no more than 70 degrees forward (e.g., from a flat configuration) with 45 degrees of the 70 degrees being limited by the wing frame and the remaining 25 degrees by the wedge for each wing member. The headrest may alternatively include an automatic wing retraction system (e.g., if wings are motorized) which would function to retract the wings to a flat configuration (e.g., substantially planar with back members) when sudden acceleration or deceleration is sensed. In this regard, the wing retraction system may include a "g" sensor or an airbag type of trigger sensor to initiate retraction of the wings.

In the embodiment illustrated in Figs. 3-4, the interconnecting member comprises one or more stems or rods attached to the base of the back member 135c. In this regard, the headrest may replace existing removable headrests in automobile seats or other similar type seats. Such stems or rods 142 may comprise a metallic material such as steel, to adequately support a head during rear-end collisions (e.g., for automobile applications) and while the user is at rest. Such rods 142 may also include a plurality of notches to provide height adjustability of the back member relative to an automobile seat interconnected thereto, since such automobile seats typically include a channel or tube for receiving such rods 142 and a height adjustment mechanism operatively mounted with such notches 143. In an alternative embodiment, the headrest may instead include a strap for securing the headrest to a seat or headrest portion of an existing seat. Such a strap is positionable adjacent to the hinge axes defined by the first and second hinges 136a, 136b and may be looped through slots in the back member 136c, substantially as described hereinabove with respect to the embodiment of the headrest illustrated in Figs. 1-2. In the illustrated embodiment, the back member 136c includes insert areas which allow the strap to be positioned close to the hinges, such that the mounting strap is located largely along or about the hinge axis. Such insert area enhances stability. The headrest may further include a releasable locking mechanism (e.g., a tab on the hinge) for locking the first and/or second wing members in at least one of various positional orientations relative to the back member 135c.

The foregoing description of the present invention has been presented for purposes of illustration and description. Furthermore, the description is not intended to limit the invention to the form disclosed herein. Consequently, variations and modifications commensurate with the above teachings, and the skill or knowledge of the relevant art, are within the scope of the present invention. The embodiments described hereinabove are further intended to explain the best modes known for practice in the invention and to enable others skilled in the art to utilize the invention in such, or other, embodiments and with various modifications required by the particular applications or uses of the present invention. It is intended that the appended claims be construed to include alternative embodiments to the extent permitted by the prior art.